IBM

TEACHING A MACHINE TO RECOGNIZE PATTERNS

The experimental adaptive pattern recognizer was designed to demonstrate the principles of adaptive logic which could enable a machine to sense a hand-printed or spoken input pattern and correctly identify it.

For example, when the numeral "3" is hand-printed with a stylus (or voiced through a microphone), it sets up a characteristic pattern of pulses within the machine. The first time the machine is presented with this electronic "portrait" of the number "3," chances are it will not be able to recognize it. Lights on the panel will flash a "don't know" or the machine may identify it as "8" because the characteristic pattern may approximate the pattern for "8."

After each wrong guess, the operator flips a dial to the desired number "3" and presses a "conditioning" button, telling the machine that it has just seen a "3." After two or three such training operations, the machine will be able to consistently recognize a "3." The memory has "adapted" -- organized itself -- to associate an input pattern with one already familiar to it.

Still in early research stages, adaptive logic machines hold promise for such important future applications as diagnosis of illness from "patterns" of symptons, analysis of weather map data, handwriting and speech recognition, and in "self-repairing" systems for space exploration.

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